Pending Claims

The listing of claims will replace all prior versions, and listings of claims in the application.

Claim 1. (Original) A method for classifying a data packet in a network interface, comprising the steps of:

(a) receiving a plurality of classification parameters;

(b) generating a plurality of program modules, each of said plurality of program modules for testing for adherence to at least one corresponding classification parameter;

(c) receiving the data packet;

(d) generating a header, said header indicating whether one or more predefined fields are present in the data packet and identifying a location of said one or more predefined fields in the data packet when present;

(e) executing each of said plurality of program modules, wherein each of said plurality of program modules receives said header and generates a test result based on contents of said header and contents of the data packet; and

(f) processing the data packet based on said test results from said plurality of program modules.

Claim 2. (Original) The method of claim 1, wherein said classification parameters comprise DOCSIS classification parameters.

Claim 3. (Original) The method of claim 1, wherein step (f) comprises applying

packet header suppression to the data packet based on said test results from said plurality

of program modules.

Claim 4. (Original) The method of claim 1, wherein step (f) comprises

transmitting the data packet over a selected service flow based on said test results from

said plurality of program modules.

Claim 5. (Original) The method of claim 1, wherein step (f) comprises rejecting

the data packet for violating classification parameters based on said test results from said

plurality of program modules.

Claim 6. (Original) The method of claim 1, wherein step (a) comprises receiving

a configuration file, said configuration file including said plurality of classification

parameters.

Claim 7. (Original) The method of claim 1, wherein step (a) comprises receiving

a cable modem configuration request, said cable modem configuration request including

said plurality of classification parameters.

Claim 8. (Original) The method of claim 1, wherein step (a) comprises receiving

a dynamic service message, wherein said dynamic service message includes said

plurality of classification parameters.

Claim 9. (Original) The method of claim 1, wherein said steps (a) and (b) occur as part of a cable modem registration process.

Claim 10. (Original) The method of claim 1, wherein said steps (a) and (b) occur during generation of a new service flow.

Claim 11. (Original) The method of claim 1, wherein said header is concatenated to the data packet.

Claim 12. (Original) The method of claim 1, wherein step (e) comprises executing each of said plurality of program modules in parallel.

Claims 13. (Original) The method of claim 1, wherein step (f) comprises the steps of:

combining said test results from said plurality of program modules using a logical AND operation; and

processing the data packet based on a result of said logical AND operation.

Claim 14. (Original) A method for classifying a data packet in a network interface, comprising the steps of:

(a) receiving a plurality of classification parameters;

- 5 -

JOHNSON *et al.*
Appl. No. 10/087,779

(b) generating a plurality of optimized program modules, each of said plurality of program modules for testing for adherence to at least one corresponding classification parameter;

(c) receiving the data packet;

(d) generating a header, said header indicating whether one or more predefined fields are present in the data packet and identifying a location of said one or more predefined fields in the data packet when present;

(e) serially executing said plurality of program modules, wherein each of said plurality of program modules receives said header and generates a test result based on contents of said header and contents of the data packet used to generate the header, until one of said plurality of program modules generates a failing test result; and

(f) processing the data packet based on whether a failing test result was generated in step (e).

Claim 15. (Original) A method for classifying a data packet in a network interface, comprising the steps of:

(a) receiving a plurality of classification parameters;

(b) generating a plurality of program modules, each of said plurality of program modules for testing for adherence to at least one corresponding classification parameter;

(c) receiving the data packet;

(d) executing each of said plurality of program modules, wherein each of said plurality of program modules generates a test result based on contents of the data packet; and

(e) processing the data packet based on said test results from said plurality of program modules.

Claim 16. (Original) The method of claim 15, wherein said classification parameters comprise DOCSIS classification parameters.

Claim 17. (Original) The method of claim 15, wherein step (e) comprises applying packet header suppression to the data packet based on said test results from said plurality of program modules.

Claim 18. (Original) The method of claim 15, wherein step (e) comprises transmitting the data packet over a selected service flow based on said test results from said plurality of program modules.

Claim 19. (Original) The method of claim 15, wherein step (e) comprises rejecting the data packet for violating classification parameters based on said test results from said plurality of program modules.

Claim 20. (Original) The method of claim 15, wherein step (a) comprises receiving a configuration file, said configuration file including said plurality of classification parameters.

Claim 21. (Original) The method of claim 15, wherein step (a) comprises receiving a cable modem configuration request, said cable modem configuration request including said plurality of classification parameters.

Claim 22. (Original) The method of claim 15, wherein step (a) comprises receiving a dynamic service message, wherein said dynamic service message includes said plurality of classification parameters.

Claim 23. (Original) The method of claim 15, wherein said steps (a) and (b) occur as part of a cable modem registration process.

Claim 24. (Original) The method of claim 15, wherein said steps (a) and (b) occur during generation of a new service flow.

Claim 25. (Original) The method of claim 15, wherein step (d) comprises the step of:

executing each of said plurality of program modules in parallel.

Claim 26. (Original) The method of claim 15, wherein step (e) comprises the steps of:

(1) combining said test results from said plurality of program modules using a logical AND operation; and

(2) processing the data packet based on a result of said logical AND operation.

Claim 27. (Original) A computer program product comprising a computer usable medium having computer program logic for enabling a processor in a network interface to classify a data packet, comprising:

a first means for enabling the processor to receive a plurality of classification parameters;

a second means for enabling the processor to generate a plurality of program modules, each of said plurality of program modules for testing for adherence to at least one corresponding classification parameter;

a third means for enabling the processor to receive the data packet;

a fourth means for enabling the processor to generate a header, said header indicating whether one or more predefined fields are present in the data packet and identifying a location of said one or more predefined fields of the data packet when present;

a fifth means for enabling the processor to execute each of said plurality of program modules, wherein each of said plurality of program modules receives said header and generates a test result based on contents of said header and contents of said data packet; and

a sixth means for enabling the processor to process the data packet based on said test results from said plurality of program modules.

Claim 28. (Original) The computer program product of claim 27, wherein said first means comprises means for enabling the processor to receive DOCSIS classification parameters.

Claim 29. (Original) The computer program product of claim 28, wherein said sixth means comprises means for enabling the processor to apply packet header suppression to the data packet based on said test results from said plurality of program modules.

Claim 30. (Original) The computer program product of claim 28, wherein said sixth means comprises means for enabling the processor to transmit the data packet over a selected service flow based on said test results from said plurality of program modules.

Claim 31. (Original) The computer program product of claim 28, wherein said sixth means comprises means for enabling the processor to reject the data packet for violating classification parameters based on said test results from said plurality of program modules.

Claim 32. (Original) The computer program product of claim 28, wherein said first means comprises means for enabling the processor to receive a plurality of classification parameters retrieved from a configuration file.

Claim 33. (Original) The computer program product of claim 28, wherein said first means comprises means for enabling the processor to receive a plurality of classification parameters retrieved from a cable modem configuration request.

Claim 34. (Original) The computer program product of claim 28, wherein said first means comprises means for enabling the processor to receive a plurality of classification parameters retrieved from a dynamic service message.

Claim 35. (Original) The computer program product of claim 28, wherein said first means and said second means are executed as part of a cable modem registration request.

Claim 36. (Original) The computer program product of claim 28, wherein said first means and said second means are executed during generation of a new service flow.

Claim 37. (Original) The computer program product of claim 28, wherein said fourth means comprises means for enabling the processor to concatenate said header to the data packet.

Claim 38. (Original) The computer program product of claim 28, wherein said fifth means comprises means for enabling the processor to execute each of said plurality of program modules in parallel.

Claim 39. (Original) The computer program product of claim 28, wherein said sixth means comprises means for enabling the processor to combine said test results from said plurality of program modules using a logical AND operation and process the data packet based on a result of said logical AND operation.